



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/031,659

11/13/2001

Nongjian Tao

29171/36823A

6307

4743

7590

01/28/2004

MARSHALL, GERSTEIN & BORUN LLP  
6300 SEARS TOWER  
233 S. WACKER DRIVE  
CHICAGO, IL 60606

EXAMINER

ESPLIN, DAVID B

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 01/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/031,659

Applicant(s)

TAO ET AL.

Examiner

D. Ben Esplin

Art Unit

2851

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 18-25, 29, 30, 37 and 39 is/are rejected.
- 7) ☒ Claim(s) 8-17, 26-28 and 31-36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other:

## **DETAILED ACTION**

### ***Claim Objections***

The objection to claim 20 in the Office Action mailed 10/2/03 is withdrawn in light of the amendment to this claim in the Response filed 1/5/04.

Claims 31 and 32 objected to because of the following informalities: These claims refer to “the electrochemical current” without a proper antecedent basis. Examiner acknowledges that Applicant has added information to the claims regarding the source of this electrochemical current, but all that is required to overcome this objection is a simple amendment of the claim language (“[the] an electrochemical current”). Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The rejection of claim 38 in the Office Action mailed 10/2/03 is withdrawn in light of the amendment to this claim in the Response filed 1/5/04.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2851

Claims 1-7, 18-25, 29, 30, 37, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,875,032 to Naya in view of U.S. Patent No. 6,570,657 to Hoppe et al.

FIG. 1 of Naya shows a sensor including a sensor body (semicylindrical body 10) made of a material transparent to light, a layer of metallic material (metal film 12) disposed over a part of a first surface (interface 10a) of the body, a sample (sample 11), a source (light source 14) of a beam of light focused on the layer, and a differential position or intensity sensitive photo-detecting device (photodetectors 16 and 17, and comparator 18). Further, Naya teaches the determination of a differential signal, and the use of a calibration curve to analyze the sample (col. 3 lines 19-27). Although Naya does disclose that the sensor is used to analyze a sample, the reference is silent with regard to a means of introducing a sample onto the layer. However, FIG. 1 of Hoppe shows a sensor for analyzing samples including a means (Teflon chip 2a with flow chamber 2b) specifically adapted for analyzing a fluid sample (col. 3 lines 34-47). Therefore, it would have been obvious to include the means of Hoppe in the sensor of Naya in order to analyze a fluid sample with the sensor.

Referring to claims 18-39, both Naya and Hoppe are silent with respect to making the sensor adjustable in position. However, in the discussion of prior art in the instant application Applicant discusses at length the various advantages and disadvantages of fixed position sensors, like the ones shown in Naya and Hoppe, and adjustable position sensors, both of which were disclosed as being well known in the art (pages 1-4 of the instant application). Therefore, it would have been obvious to modify the sensor of Naya in view of Hoppe by making the position

Art Unit: 2851

of the sensor adjustable in order to overcome the limited angular resolution of a fixed position sensor, as is taught by the Applicant to be well known in the art.

### ***Response to Arguments***

Applicant's arguments filed 1/5/04 have been fully considered but they are not persuasive. With respect to claims 1-17, Applicant has argued that Naya does not anticipate the step of positioning the photosensitive device so that the intensity minimum is near the center of the device. This argument is not seen to be persuasive because FIGS. 2a and 2b of Naya show intensity distributions where the intensity minimum is **near** the center of the device. Applicant has not claimed the method in such a manner that it is distinguishable over a fixed sensor system like the one shown in Naya. Applicant, in the instant application, acknowledges that even in fixed sensor systems the photosensitive device is "fix[ed]... at an angle near resonance" (page 2 of the instant application). This description of a fixed sensor system, provided by the Applicant, reads on the positioning step of the method laid out in these claims.

### ***Allowable Subject Matter***

Claims 8-17, 26-28, and 31-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2851

*Conclusion*

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Ben Esplin whose telephone number is (703) 305-4022. The examiner can normally be reached on Mon.-Fri. (8am-4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russell E. Adams can be reached on (703) 308-2847. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

DBE  
DBE

  
RUSSELL ADAMS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800